

SHALE DEVELOPMENT CORPORATION

DEVELOPERS OF THE SAND WASH PROJECT

313 HIGH STREET
REDLANDS, CALIFORNIA 92373

June 28, 1984

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS & MINING
4241 State Office Building
Salt Lake City, Utah 84114

ATTN: Cyril J. Young, Engineering Geologist

RE: Shale Development Corporation
Sand Wash Mine ACT.047/005

Dear Mr. Young:

Please excuse our untimely response to your letter of October 12, 1983, but lack of cooperation from one of our consultants has caused us to make a change, and the weather conditions have added to the delay. We have just returned from a detailed examination of the Project site and feel we are now in a position to respond.

Rule M-10 (14)

We hereby commit to take new soil samples and have another analysis done after which we will forward the results to your office.

Scarification of compacted areas will take place prior to placement of top soil.

Stipulation 3-9-83-1 (CY)

Attached is a plan map indicating proposed post mining and post reclamation contours.

Stipulation 3-9-83-3 (TP)

We hereby commit to conduct tests on the process waste material to determine content of sodium, calcium, magnesium, potassium, selenium and molybdenum.

RECEIVED

JUL 2 1984

DIVISION OF OIL
GAS & MINING

JIM

JUL 09 1984

Stipulation 3-9-83-6 (SL)

We hereby commit to provide interim stabilization on all fill banks using seed mixes as discussed in our letter of October 22, 1982 and December 28, 1982. This will be accomplished during the first planting period after disturbance. Complete plans will be provided to the Division sixty (60) days prior to any stabilization.

Stipulation 3-9-83-7 (TP)

Isopach map of top soil is attached.

Stipulation 3-9-83-8 (TP)

Balance sheet and stock pile configurations is attached.

Stipulation 3-9-83-9 (TP)

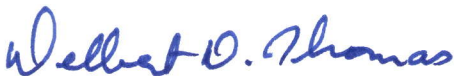
Map attached indicating planting areas and depth of soil, (See Soil Balance Map)

Stipulation 3-9-83-10 (TP)

Testing parameters described in letter from DOGM dated December 13, 1982 will be followed.

Very truly yours,

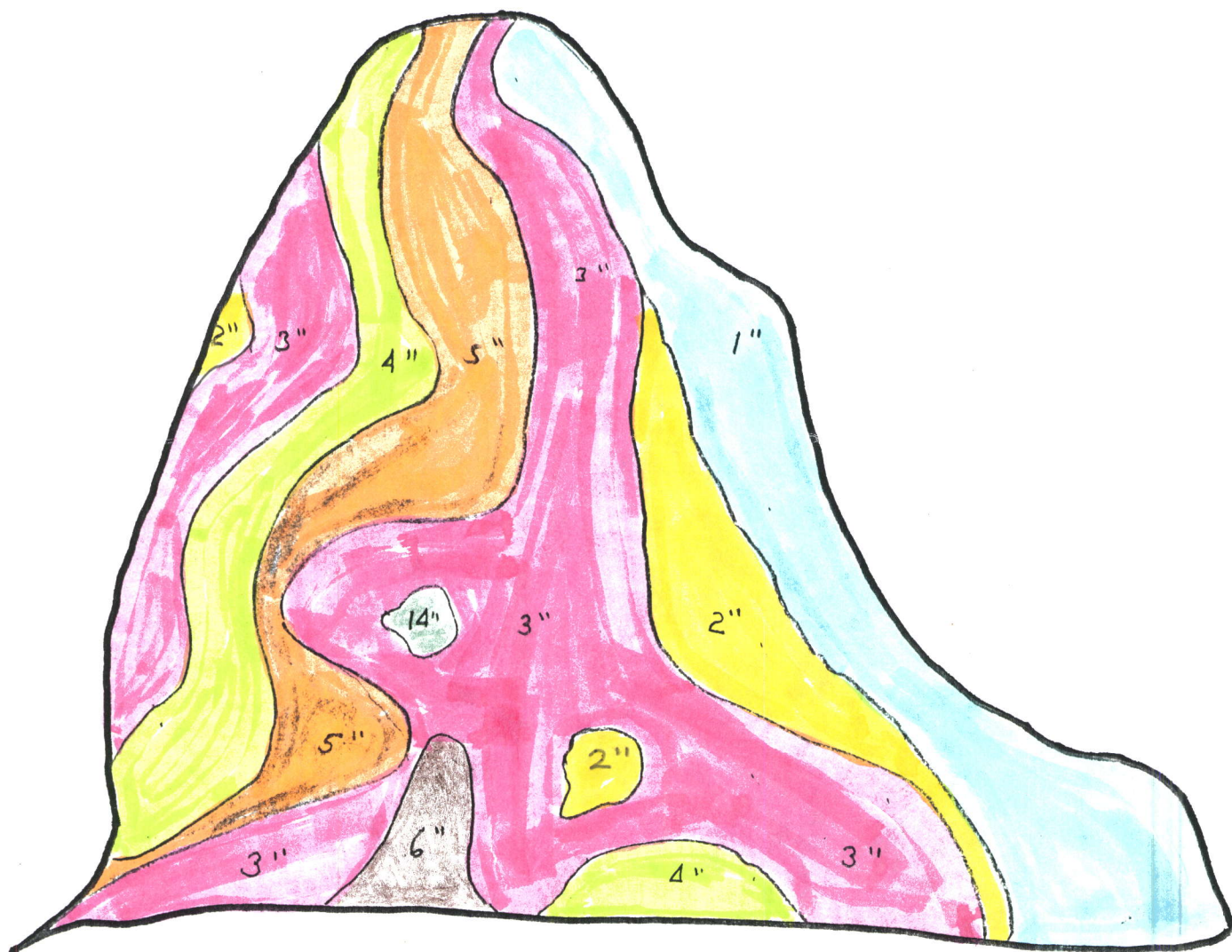
SHALE DEVELOPMENT CORPORATION



Delbert D. Thomas
President

DDT:cp

Attachements



TOP SOIL CALCULATIONS

1"	1550 sq ft	=	129 cu ft
2"	550 sq ft	=	92 cu ft
3"	3100 sq ft	=	1240 cu ft
4"	900 sq ft	=	300 cu ft
5"	800 sq ft	=	333 cu ft
6"	200 sq ft	=	100 cu ft
14"	50 sq ft	=	17 cu ft
			<u>2211 cu ft</u>

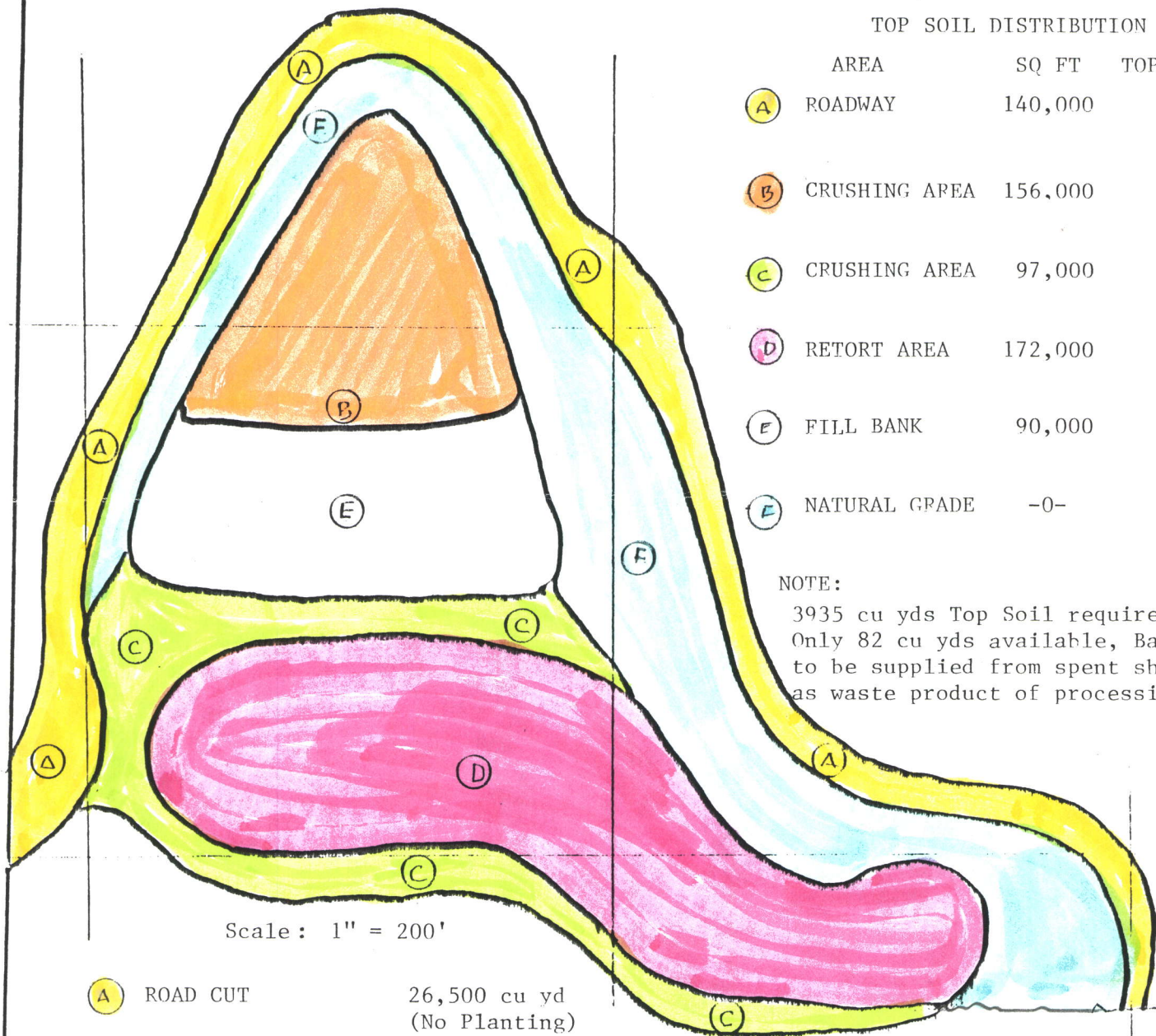
$$\frac{2211}{27} = 81.8 \text{ cu yd}$$

SAND WASH PROJECT

TOP SOIL ISOPACH MAP & BALANCE

D. Thomas

2-10-84



TOP SOIL DISTRIBUTION

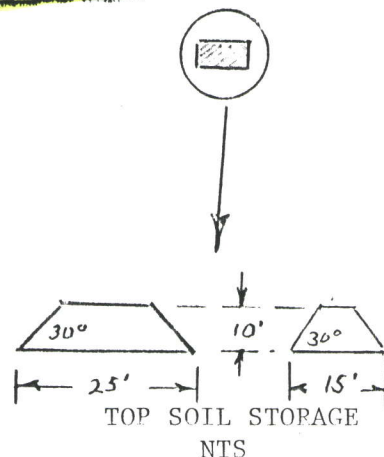
AREA	SQ FT	TOP SOIL
(A) ROADWAY	140,000	0"
(B) CRUSHING AREA	156,000	3"
(C) CRUSHING AREA	97,000	3"
(D) RETORT AREA	172,000	3"
(E) FILL BANK	90,000	0"
(F) NATURAL GRADE	-0-	0"

NOTE:

3935 cu yds Top Soil required.
Only 82 cu yds available, Balance
to be supplied from spent shale
as waste product of processing.

(A) ROAD CUT	26,500 cu yd (No Planting)
(B) CRUSHING AREA CUT	65,500 cu yd (Planting)
(C) BANK FILL	1,700 cu yd (Planting)
(D) RETORT AREA FILL	54,400 cu yd (Planting)
(E) CRUSHING AREA FILL	35,900 cu yd (Planting)
(F) NATURAL GRADE	-0- (No Planting)

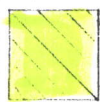
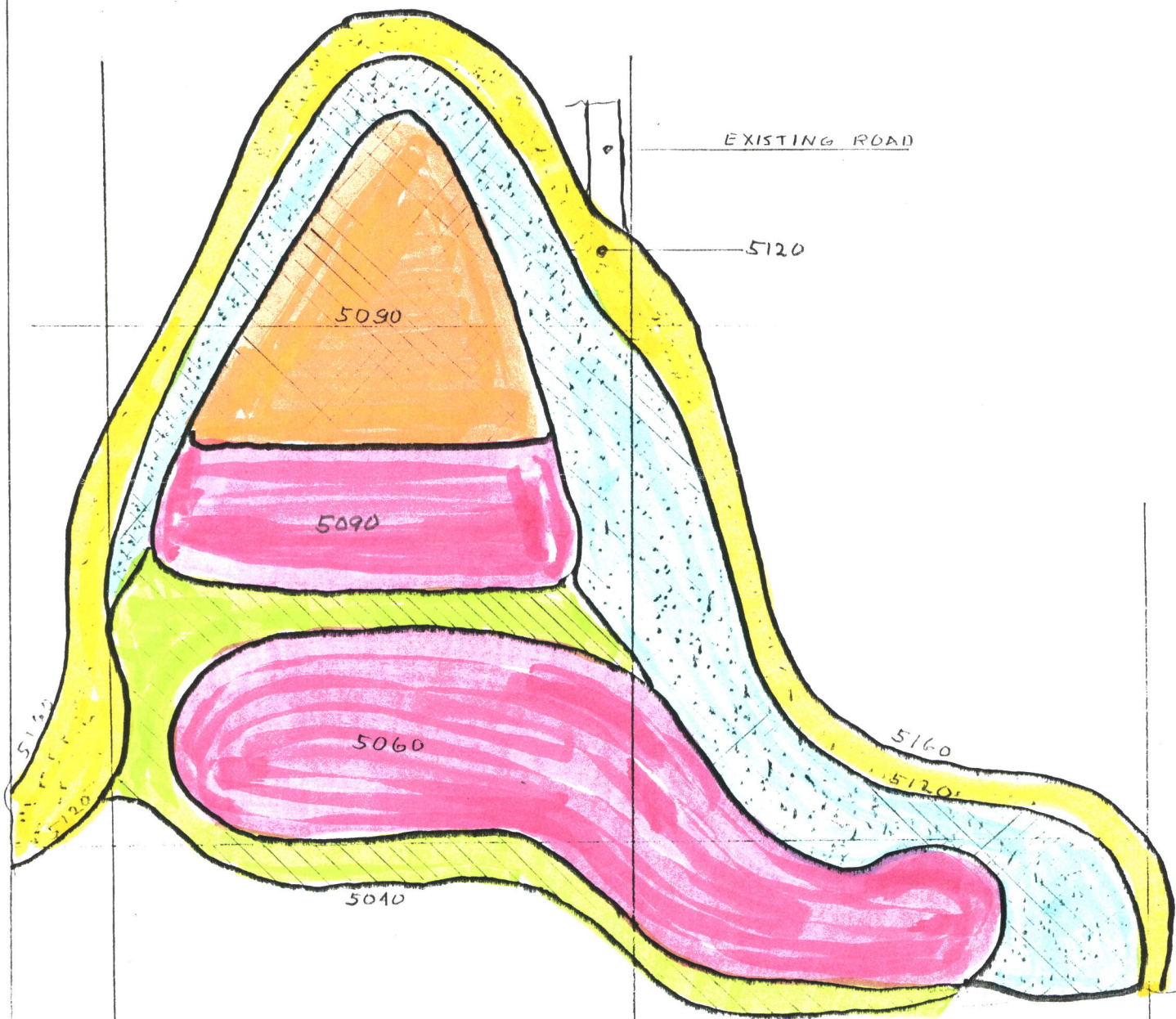
TOP SOIL 82 cu yd
SOIL BALANCE -0-



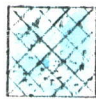
Plant as per Stip 3-9-83-6(SL) for
interim stabilization

SAND WASH PROJECT

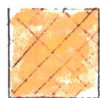
CUT, FILL AND SOIL BALANCE 6-1-84



Fill Bank - Stabilize & Plant



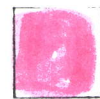
Natural Grade



Cut - Scarify & Plant



Road Cut - No Planting



Fill - Scarify, Place Top Soil & Plant

Figures Shown are elevations

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SAND WASH PROJECT
POST MINING SITE CONTOURS
6-27-84 Scale: 1" = 200'